

## CONSERVATION PRACTICE STANDARD

### ANIMAL MORTALITY FACILITY

(No.)

CODE 316

#### DEFINITION

An on-farm facility for the treatment or disposal of livestock and poultry carcasses.

- normal and catastrophic animal mortality must be disposed; however, it does not apply to catastrophic mortality resulting from disease.

#### PURPOSE

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

- Decrease non-point source pollution of surface and groundwater resources
- Reduce the impact of odors that result from improperly handled animal mortality
- Decrease the likelihood of the spread of disease or other pathogens that result from the interaction of animal mortality and predators
- To provide contingencies for normal and catastrophic mortality events

#### CONDITIONS WHERE PRACTICE APPLIES

This practice applies where:

- animal carcass treatment or disposal must be considered as a component of a waste management system for livestock or poultry operations
- on-farm carcass treatment and disposal are permitted by federal, state, and local laws, rules, and regulations
- a waste management system plan as described in the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) has been developed that accounts for the end use of the product from the mortality facility

#### CRITERIA

##### General Criteria Applicable to All Purposes

The facility shall be designed to handle normal mortality and/or catastrophic mortality.

The planning, design, and installation of animal mortality facilities or processes must conform to all federal, State and local laws, rules and regulations. This includes provisions for closing and/or removing the facility where required.

All structural components integral to animal mortality facilities shall meet the structural loads and design criteria as described in standard PA313, Waste Storage Facility.

Upslope runoff from the 25 year, 24 hour storm shall be diverted away from the facility.

##### Criteria Applicable to Normal Mortality

Animal mortality facilities shall be designed for use on a daily or regularly recurring basis to handle normal mortality rates.

The facility shall be located as close to the source of mortality as practical, considering bio-security issues and the need to keep the facility out of sight of the general public.

Design of facilities and the compost mix and process shall conform to conservation practice standard PA317, Composting Facility.

**Location.** The location shall minimize the impact of the facility on odor and other air quality issues affecting neighboring residences, as well as minimizing the impact of the facility on surface and ground water resources. The facility shall be at least 200 feet from surface

water bodies or open sinkholes. In addition, the facility, where practical, shall be at least 100 feet down- or cross-gradient from a spring or well, or 200 feet up-gradient.

Wherever possible, the animal mortality facility shall be located outside the 100 year floodplain; however if site restrictions require location within a floodplain, they shall be protected from inundation or damage.

The location of the animal mortality facility shall be consistent with the overall site plan for the livestock or poultry operation.

**Seepage Control.** Potential seepage from the compost facility shall be minimized by selecting a suitable site. The soil depth shall be at least 4 feet over bedrock or the seasonal high water table. If the soil is less than 4 feet deep or has a permeability higher than 0.2 in/hr, seepage from mortality facilities shall be reduced by using an improved impervious surface or a liner per AWMFH, Appendix 10D (clay liner design), or other acceptable liner technology. Sites with soil permeability of 0.2 in/hr or less shall have the surface stabilized to prevent ponding, rutting, and poor trafficability.

**Facility size.** The mortality composting facility shall be sized to accommodate the volume, storage and handling of animal mortalities, all other components of the compost design mix, and finished compost product. Adequate space shall be included for operation of handling equipment.

The primary and secondary composting times, the volume of animal mortalities, and the size and number of windrows or bins shall be determined using the calculation methods in NRCS-PA Design Guide PA-4, Animal Mortality Composting. Sizing of facilities for composting dead animals shall be based on normal mortality loss records for the operation. If this data is not available, locally established mortality rates for the type of operation or recommended values from Design Guide PA-4 shall be used.

Adequate space and volume shall be provided to establish a base layer for the compost mix. In a windrow system, the base layer shall be at least 12 inches of dry sawdust or finished compost for animals weighing 50 pounds or less, 18 inches for animals between 50 and 250 pounds, and 24 inches for animals over 250

pounds. This base material is not included in the compost design mix.

In a windrow or pile system, the base layer shall extend 2 feet in all directions beyond the area to be covered with carcasses. The sides and top of the carcasses shall be covered with 2 feet of damp sawdust or finished compost at all times.

Composting bins shall be designed to provide at least 6 inches of cover material between the carcasses and the side of the bin for animals weighing 50 pounds or less, and 12 inches for larger animals.

Sawdust or finished compost can be used in a 50-50 mixture with straw, corn stover, or chopped soybean stubble as the base layer and cover material.

### **Criteria Applicable to Catastrophic Mortality**

**General.** This standard shall be limited to composting of catastrophic mortalities resulting from non-pathogenic causes, such as failed heating or cooling systems, structural collapse or fire, unless specifically authorized by the state Veterinarian. Catastrophic mortality shall be collected as soon as practical and moved away from the production facility, unless the composting will be conducted in the production facility.

**Location.** The composting facility shall be located as far away from neighboring dwellings and the poultry or livestock production facility as site conditions permit, or inside the poultry or livestock production facility. Locate on sites with restricted percolation and a minimum of two feet between the bottom of the facility and the seasonal high water table unless special design features are incorporated that address seepage rates and non-encroachment of contaminants into the water table. Use AWMFH Appendix 10D for selection of sites where seepage will be restricted with normal construction techniques.

Catastrophic mortality composting shall be in either passive piles or windrows as described in National Engineering Handbook Part 637, Chapter 2 – Composting (NEH 637.0210 and NEH 637.0211).

Composting mortality shall be protected from precipitation as necessary, or provisions made for collecting contaminated runoff and leachate. Static piles or windrows covered with sawdust,

finished compost, or other benign material will not need further protection.

## CONSIDERATIONS

Major considerations in planning animal mortality management are:

- Available equipment at the operation,
- The management capabilities of the operator,
- The degree of pollution control required by state and local agencies,
- The economics of the available alternatives, and
- Effect on neighbors.

Consideration should be given to prevailing wind direction and neighbors when siting animal mortality facilities. A minimum of 300 feet should separate the facility from the nearest neighboring residence.

Bio-security concerns should be addressed in all aspects of planning, design, and installation of an Animal Mortality Facility. Traffic patterns and runoff paths between animal production facilities and the animal mortality facility, especially across or adjacent to feeding areas and young stock housing, should be considered in selecting the site and designing the facility.

In selecting between a bin and windrow system, consider bio-security, potential for runoff or seepage, proximity of neighbors, availability of sawdust or other compost amendments, and management and space requirements.

Composting of mortalities will be hindered if the carcasses are allowed to freeze. They should be kept in a dry, non-freezing environment until added to the compost mix.

An alternative to prevent bloating of catastrophic mortality die off could include opening animal thoracic and abdominal cavities and viscera prior to placing required cover.

Vegetative screens and topography can be used to shield the animal mortality facility from public view, and to minimize visual impact.

Safety devices such as fencing, warning signs, and locks may be necessary.

Ground disturbing activities such as excavation and site preparation for disposal facilities have

the potential to affect significant cultural resources.

## PLANS AND SPECIFICATIONS

Plans and specifications for animal mortality facilities shall be in keeping with this standard and shall describe the requirements for applying this practice to achieve its intended purpose.

## OPERATION AND MAINTENANCE

A written, site specific operation and maintenance plan shall be prepared for and reviewed with the facility operator. The O&M plan shall include, but is not limited to the items listed below, and will become a part of the overall waste management system plan. The requirements in the individual operation and maintenance plan shall be consistent with the practice purposes, intended life, and design criteria. Safety and bio-security shall be prominently addressed in the plan.

### ***Normal Mortality***

Animal mortality facilities will normally be operated or used on a daily or regularly recurring basis. At each operation or use, the facility shall be inspected to note any maintenance needs or indicators of operation problems.

### ***Catastrophic Mortality***

Possible locations for catastrophic animal mortality facilities shall be located during the planning process, to be operated as needed.

Operators should maintain a list of current phone numbers for state and local officials to aid in notification if disease-related catastrophic mortality occurs.

Where composting is used for catastrophic mortality disposal, the operation and maintenance plan shall identify the most likely compost medium, possible compost recipes, operational information, and equipment that will need to be readily available.

## REFERENCES

Agricultural Waste Management Field Handbook (AWMFH).

National Engineering Handbook, Part 637, Chapter 2, Composting.

NRCS GM 420 Part 401 – Cultural Resources.

NRCS National Handbook of Conservation Practices.

NRCS-PA Design Guide PA-4, Animal Mortality Composting, 2005.

Ohio's Livestock and Poultry Mortality Composting Manual, Ohio State University Extension, 2000.